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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/714,221	11/14/2003	Seung Ho Hong	CU-3452 RJS	2544

26530 7590 04/09/2004

LADAS & PARRY
224 SOUTH MICHIGAN AVENUE, SUITE 1200
CHICAGO, IL 60604

EXAMINER

NGUYEN, DUNG T

ART UNIT PAPER NUMBER

2871

DATE MAILED: 04/09/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/714,221

Applicant(s)

HONG ET AL.

Examiner

Dung Nguyen

Art Unit

2871

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 03 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☒ Claim(s) 9 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 November 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Specification

2. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Drawings

3. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the liquid crystal display (LCD) device having substrates, vertical alignment layers, color filters, compensation plates, polarizers, polarizers arrangement respect to the slits or the valley must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

Art Unit: 2871

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-3 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Koma, US Patent No. 6,229,589, in view of Yamada, US Patent Application Publication No. 2002/0159012 A1.

Regarding the above claims, Koma disclose a vertical alignment LCD (figures 6-7) having:

- . an upper substrate (30);
- . a lower substrate (10);
- . vertical alignment layers (20, 33);
- . a liquid crystal layer (40);
- . a plurality of slits in a pixel region (19d, 19e);
- . a valley (control window 32a-32c) formed on the upper substrate and crossed to the slits at an angle (e.g., 45 degrees);
- . polarizers inherently arranged in outer faces of the substrates (col. 2, lines 47+).

Although Koma does not disclose the valley formed in a color filter, Yamada does disclose a valley (e.g., depression 124a) can be formed in a color filter 124 (see figure 7). Therefore, it would have been obvious to one skilled in the art to employ a color filter having a valley as shown by Yamada in order to improve a response speed in an LCD device (see Summary of the Invention).

6. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Koma, US Patent No. 6,229,589, in view of Yamada, US Patent Application Publication No. 2002/0159012 A1, further in view of Koma et al., US Patent No. 6,509,944.

Art Unit: 2871

The modification to Koma ('589) discloses the invention as described above except for the slits width and the valley width. Koma et al. ('944) do disclose a width of a slit (W_p) can be $5\mu\text{m}$ as well as a width for a gap of common electrode can also be $5\mu\text{m}$ (see figure 5 and Experimental Results table). Therefore, it would have been obvious to one skilled in the art at the time of the invention was made to employ a slit and a valley having a width of $5\mu\text{m}$ as shown by Koma et al. ('944) in order to improve image display (see col. 6).

7. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Koma, US Patent No. 6,229,589, in view of Yamada, US Patent Application Publication No. 2002/0159012 A1, further in view of Xu et al., US Patent No. 6,023,317.

The modification to Koma discloses the invention as described above except for a pair of uniaxial compensation phase plates disposed between polarizers and the substrates and having a retardation value of 40 to 800nm. Xu et al. disclose a pair of uniaxial retarder (2 and 14) having a retardation value of about 80 to 200 nm (see figure 1 and Summary of the Invention). Therefore, it would have been obvious to one skilled in the art at the time of the invention was made to employ a pair of uniaxial compensator plates having a retardation of about as shown by Xu et al. ('944) in order to provide a normally white display where is the viewing zone of the say has both high contrast ratio and no inversion over a wide range of viewing angles. (see col. 4, ln. 23).

8. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Koma, US Patent No. 6,229,589, in view of Yamada, US Patent Application Publication No. 2002/0159012 A1, further in view of Kikuchi et al., US Patent No. 5,440,413.

The modification to Koma discloses the invention as described above except for the liquid crystal layer having a retardation value of about 200 to 500 nm. Kikuchi et al. disclose an LCD in which a liquid crystal layer having a retardation falls within range 350-550 nm (col. 10, ln 28-29). Therefore, such disclosed range in Kikuchi et al. makes possible the claimed range of 200 to 500 nm, and overlapping ranges are at least obvious. *In re Malagari*, 499 Fed.2d 1297, 182 USPQ 549 CCPA 1974. In addition, the visual angle characteristic can also be improve (col. 10, ln 35).

9. Claim 8 rejected under 35 U.S.C. 103(a) as being unpatentable over Koma, US Patent No. 6,229,589, in view of Yamada, US Patent Application Publication No. 2002/0159012 A1, further in view of Hong et al., US Patent No. 6,469,762.

The modification to Koma discloses the invention as described above except for the liquid crystal layer has a negative dielectric anisotropy ranging from about -2 to -10. Hong et al. disclose a dielectric anisotropy of a liquid crystal layer is in the range of -1.5 to -1. Therefore, it would have been obvious to one skilled in the art at the time of the invention was made to employ a negative dielectric anisotropy liquid crystal layer in a range of -1.5-1 in the Koma's liquid crystal layer as shown by Hong et al. in order to obtain wide viewing angle as well as to improve picture quality in an LCD device (col. 3, ln. 37-38).

Allowable Subject Matter

10. Claim 9 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion


11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dung Nguyen whose telephone number is 571-272-2297. The examiner can normally be reached on Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert H. Kim can be reached on 571-272-2293. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

DN
05/04/2004


Dung Nguyen
Primary Examiner
Art Unit 2871